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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/876,984	06/08/2001	Qingping Chen	618-999	9954

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EXAMINER

SHOSHO, CALLIE E

ART UNIT	PAPER NUMBER
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1714

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DATE MAILED: 01/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/876,984

Applicant(s)

CHEN ET AL.

Examiner

Callie E. Shosho

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 16-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 16-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. All outstanding rejections except for those described below are overcome by applicants' amendment filed 10/30/02.

The following rejection is non-final in light of the new grounds of rejection as set forth below with respect to Ito (U.S. 6,387,984).

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-13, 16-23, 26-28, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito (U.S. 6,387,984) in view of Cook (U.S. 4,146,699).

Ito discloses non-erasable ink for ballpoint pen wherein the ink has viscosity of 3000-9000 cPs and comprises 0.1-20% polyurethane, 0.1-10% colorant which is pigment or dye, 1-40% solvent including polyol such as ethylene glycol or glycerin, 1-35% second resin such as polyester, polystyrene, polyacrylate, and polymethyl methacrylate, rust preventative which is benzotriazole, and lubricant. The ink contains dispersant such as polyurethane as well as mixtures of dispersants wherein the additional dispersants include oleophilic dispersants as well as acid functional dispersants (col.4, lines 30-40, col.5, lines 18-20 and 49-58, col.6, lines 51-54, col.7, lines 52-62, col.8, lines 1-56 and 64-66, col.12, lines 58-60, and col.13, lines 6-7).

The difference between Ito and the present claimed invention is the requirement in the claims of (a) isocyanate free polyurethane and (b) molecular weight of the polyurethane.

With respect to difference (a), Ito discloses the use of polyurethane, however, there is no explicit disclosure that the polyurethane is isocyanate free.

Cook, which is drawn to process of making polyurethane, disclose that if free isocyanate is present, storage stability is a problem as well as less favorable processing characteristics and physical properties (col.2, lines 14-25).

Given that Ito in view of Cook discloses polyurethane and organic solvent identical to those presently claimed, it would have been natural for one of ordinary skill in the art to infer that the polyurethane and organic solvent intrinsically form homogeneous solution.

In light of the motivation for using isocyanate free polyurethane disclosed by Cook as described above, it therefore would have been obvious to one of ordinary skill in the art to use isocyanate free polyurethane in the ink of Ito in order to produce a storage stable ink with good processing and physical characteristics, and thereby arrive at the claimed invention.

With respect to difference (b), given the relationship between molecular weight and viscosity, it would have been within the skill level of one of ordinary skill in the art to choose polyurethane with molecular weight, including that presently claimed, in order control the viscosity of the ink so that the ink will not clog the pen or run off the page, and thereby arrive at the claimed invention.

4. Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito in view of Cook as applied to claims 1-13, 16-23, 26-28, and 36 above, and further in view of Gajria et al. (U.S. 4,686,246).

The difference between Ito in view of Cook and the present claimed invention is the requirement in the claims of amount of corrosion inhibitor.

Gajria, which is drawn to ink for ballpoint pen, disclose the use of less than 5% corrosion inhibitor in order to prevent corrosion of metals that come in contact with the ink (col.5, lines 42-46).

In light of the motivation for using specific amount of corrosion inhibitor disclosed by Gajria as described above, it therefore would have been obvious to one of ordinary skill in the art to use this amount of corrosion inhibitor in the ink of Ito in order to prevent corrosion of metals which come in contact with the ink, and thereby arrive at the claimed invention.

5. Claims 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito in view of Cook as applied to claims 1-13, 16-23, 26-28, and 36 above, and further in view of Yatake (U.S. 6,454,846).

The difference between Ito in view of Cook and the present claimed invention is the requirement in the claims of sorbitan sesquioleate.

Yatake, which is drawn to ink suitable for use in writing instrument, disclose the use of sorbitan sesquioleate in order to regulate penetration of the ink onto the recording media and to regulate the surface tension of the ink (col.3, line 8, col.8, lines 44-48, and col.9, line 1).

Although there is no explicit disclosure of the amount of sorbitan sesquioleate utilized, it would have been within the skill level of one of ordinary skill in the art to choose amounts of sorbitan sesquioleate, including those presently claimed, in order to produce ink with suitable surface tension and effective penetrating properties.

In light of the motivation for using sorbitan sesquioleate disclosed by Yatake as described above, it therefore would have been obvious to one of ordinary skill in the art to use sorbitan sesquioleate in the ink of Ito in order to produce an ink which will not dry out at the pen tip, and thereby arrive at the claimed invention.

6. Claims 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito (U.S. 6,387,984) in view of Cook (U.S. 4,146,699) and either Yamamoto et al. (U.S. 5,059,246) or Kramer et al. (U.S. 4,077,807).

Ito discloses non-erasable ink for ballpoint pen wherein the ink has viscosity of 3000-9000 cPs and comprises polyurethane, colorant, and solvent (col.4, lines 30-40, col.5, lines 18-20 and 49-58, col.6, lines 51-54, col.7, lines 52-62, col.8, lines 1-56 and 64-66, col.12, lines 58-60, and col.13, lines 6-7).

The difference between Ito and the present claimed invention is the requirement in the claims of (a) isocyanate free polyurethane and (b) antioxidant.

With respect to difference (a), Ito discloses the use of polyurethane, however, there is no explicit disclosure that the polyurethane is isocyanate free.

Cook, which is drawn to process of making polyurethane, disclose that if free isocyanate is present, storage stability is a problem as well as less favorable processing characteristics and physical properties (col.2, lines 14-25).

With respect to difference (b), Yamamoto et al., which is drawn to ink suitable for use in writing instrument, disclose the use of 0.001-0.1% antioxidant such as hydroquinone in order to

improve the performance of the ink such as ejection stability and response (col.5, lines 63-66 and col.6, lines 28-29).

Alternatively, Kramer et al., which is drawn to ink for writing instrument, disclose the use of 1-3% antioxidant such as hydroquinone in order to prevent corrosion and reaction of the ink with oxygen which produces a stable ink which will not clog the pen tip over time (col.3, line 63-col.4, line 7, col.5, lines 3-8, col.7, lines 42-62, col.8, lines 63-64, and col. 16, lines 11-13).

In light of the motivation for using isocyanate free polyurethane disclosed by Cook and for using antioxidant disclosed by either Yamamoto et al. or Kramer et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use isocyanate free polyurethane and antioxidant in the ink of Ito in order to produce a storage stable ink with good processing and physical characteristics and improved performance, and thereby arrive at the claimed invention.

7. Claims 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito (U.S. 6,387,984) in view of Cook (U.S. 4,146,699) and Enami (U.S. 4,471,079).

Ito discloses non-erasable ink for ballpoint pen wherein the ink has viscosity of 3000-9000 cPs and comprises polyurethane, colorant, and solvent (col.4, lines 30-40, col.5, lines 18-20 and 49-58, col.6, lines 51-54, col.7, lines 52-62, col.8, lines 1-56 and 64-66, col.12, lines 58-60, and col.13, lines 6-7).

The difference between Ito and the present claimed invention is the requirement in the claims of (a) isocyanate free polyurethane and (b) plasticizer.

With respect to difference (a), Ito discloses the use of polyurethane, however, there is no explicit disclosure that the polyurethane is isocyanate free.

Cook, which is drawn to process of making polyurethane, disclose that if free isocyanate is present, storage stability is a problem as well as less favorable processing characteristics and physical properties (col.2, lines 14-25).

With respect to difference (b), Enami, which is drawn to ink for ballpoint pen, disclose the use of 2% plasticizer in order to control the adhesion properties of the ink (col.8, lines 39-53 and col.25, line 67).

In light of the motivation for using isocyanate free polyurethane and plasticizer disclosed by Cook and Enami, respectively, as described above, it therefore would have been obvious to one of ordinary skill in the art to use isocyanate free polyurethane and plasticizer in the ink of Ito in order to produce a storage stable ink with good adhesion, and thereby arrive at the claimed invention.

Response to Arguments

8. Applicants' arguments with respect to Harris et al. (U.S. 5,886,091), Lent et al. (U.S. 5,837,042), Yang (U.S. 5,594,044), and Ichikawa et al. (U.S. 5,980,624) have been fully considered, but they are moot in view of the discontinuation of these references against the present claims.

Art Unit: 1714

9. Applicants' arguments filed 10/03/02 have been fully considered, but with the exception of arguments relating to Harris et al., Lent et al., Yang, and Ichikawa et al., they are not persuasive.

Specifically, applicants argue that:

(a) Ito is not a relevant reference against the present claims given that Ito discloses an aqueous ink composition while the present invention is drawn to organic-solvent based ink.

(b) There is no motivation, other than applicants' own disclosure to combine Ito with Cook.

(c) There is no motivation to combine Ito with Gajria given that Ito is drawn to ink with viscosity of 100-20,000 cPs while Gajria is drawn to ink with viscosity of less than 100 cPs and further given that there is no disclosure in Gajria that corrosion inhibitor will not precipitate ink of Ito.

With respect to argument (a), it is noted that in light of the open language of the present claims, i.e. "comprising", the present claims are open to the inclusion of additional ingredients including water. With the exception of claims 12-13, there is no requirement in the present claims regarding the amount of organic solvent present. Given that claim 12 requires the use of 1-90% solvent and claim 13 requires the use of 10-65% solvent, it is clear that solvent can be present in small amounts, which clearly encompasses the use of large amounts of water.

With respect to argument (b), it is the examiner's position that there is motivation to combine Ito with Cook. Ito discloses the use of polyurethane, but there is no disclosure that the polyurethane is isocyanate free. Cook, which is drawn to process of making polyurethane, disclose that if free isocyanate is present, storage stability is a problem as well as less favorable processing characteristics and physical properties. Given that Cook teaches the use of polyurethane which will not cause problems with storage stability, it would have been obvious to one of ordinary skill in the art to use such polyurethane in the ink of Ito where it is very important that the ink remain stable so as not to clog the writing instrument even after periods of non-use or storage.

Additionally, applicants' are reminded that according to MPEP 2141.01 (a), a reference may be relied on as a basis for rejection of an applicants' invention if it is "reasonably pertinent to the particular problem with which the inventor is concerned." A reasonably pertinent reference is further described as one which "even though it maybe in a different field of endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem." Cook is therefore, a reasonably pertinent reference, because it teaches that one problem with polyurethane is that when free isocyanate is present, storage stability is a problem as well as less favorable processing characteristics and physical properties. Thus, such disclosure would teach one of ordinary skill in the art to use isocyanate free polyurethane in order to avoid problems with storage stability.

With respect to argument (c), it is noted that Ito already discloses the use of corrosion inhibitor. Gajria is only used to teach amounts of corrosion inhibitor typically found in ink

Art Unit: 1714

compositions. While Gajria does disclose ink with different viscosity than the ink of Ito, firstly, note that Gajria is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely the amount of corrosion inhibitor used in ink, and in combination with the primary reference, discloses the presently claimed invention. Further, one of ordinary skill in the art would recognize that inks would contain conventional additives such as corrosion inhibitors regardless of the viscosity of the ink.

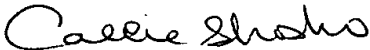
Additionally, it is noted that col. 12, lines 55-56 of Ito disclose that the ink contains “conventional additives” which are used “as required”. There is no restriction or limitation as to the amount of corrosion inhibitor added. Further, given that Ito discloses that a corrosion inhibitor is a “conventional” ingredient, it would have been natural for one of ordinary skill in the art to add such additive in conventional amounts such as those disclosed by Gajria.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 703-305-0208. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Vasu Jagannathan can be reached on 703-306-2777. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Art Unit: 1714

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Callie E. Shosho
Examiner
Art Unit 1714

CS
January 6, 2003